

CASE STUDY

Service Provider Gains New Revenues with IPTV Service

Challenge

Many service providers are pursuing new opportunities in data and advanced video services based on the Internet Protocol to boost top-line revenue and outperform the competition. Service providers are dedicating increasing amounts of their capital expenses to IPTV infrastructure with IPTV subscribers expected to more than double globally every year for the next several years. However, IP video is also one of the most technically challenging services to deploy and therefore has to be supported by a stable yet powerful head-end system.

One North American service provider in particular, with over 400,000 customers, wanted to introduce IPTV services, which required investments in Operations Support Systems (OSS), head-end systems and customer premise equipment (CPE). At the central office, they needed an iTV middleware platform, a DHCP provisioning system, and DSLAMs between the DSL lines and IP network. At the customer sites, they needed to install IP set top boxes (STBs) to decode IP network data into video for TVs.

The iTV middleware was responsible for sending TV signals, encoded onto IP data streams, to the STBs. The middleware had to coordinate which streams were sent to which set top boxes, with only one TV channel transmitted to each set top box at a time in order to save on bandwidth.

The DHCP provisioning system was needed to automatically assign IP addresses and DHCP option sets to CPE, including the STBs.

For IPTV service delivery, the new DHCP system had to meet stringent requirements. First, it had to support DHCP Option 82, which identifies the CPE's circuit ID. This capability would allow the DHCP service to allocate IP addresses, as well as limit the number of IP addresses per subscriber, based on circuit ID. Second, the DHCP service had to assign IP addresses according to permitted service levels or geographic locations. Finally, the DHCP had to exhibit carrier-grade performance – ultra-high reliability and scalability – to meet the service provider's needs for "always-on" availability and peak-demand responsiveness.

Solution

Incognito Software provided the carrier-grade DHCP system for CPE activation. The iTV middleware, DSLAMs, and set top boxes were sourced from three other vendors. With Incognito's Broadband Command Center DHCP software for DSL, the service provider could easily set up policies specifying permitted service levels, number of IP addresses, and customized DHCP option sets for various groups of subscriber devices.

BENEFITS

- Immediate subscriber growth
- Low-cost administration
- Easy integration
- Deployment Flexibility
- Fast revenue growth

APPLICATIONS

- IPTV service rollouts

SOFTWARE

- Incognito's Broadband Command Center™

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Any DHCP option could be customized, including vendor-specific device information, lease time, and gateway, to meet the unique needs of the IPTV system.

In addition to supporting DHCP Option 82, the software could also handle DHCP Lease Query messages, through which relay agents identify MAC addresses from IP addresses. The service provider gained complete flexibility in allocating IP addresses according to IP address subnet or specific service class, such as device type, service speed, or geographic location.

For instance, the service provider could create a service class defined by a geographic area, with “members” (modems) in that service class based on a particular circuit ID, and those members permitted to have a specific set of DHCP options as well as multiple IP addresses from a selected scope. When modems and STBs were ready to be activated, Broadband Command Center could automatically perform the IP address assignment based on the service provider’s pre-defined rules. Another option was to grant IP addresses based on the device’s MAC address, which is provided in DHCP option data or in a DHCP Lease Query message.

The DHCP system also offered 5-nines availability to prevent delays in activation, and in turn, prevent customer churn, cut support costs, and ensure revenues. The software was designed to go beyond IETF draft specifications for DHCP failover using 1:1 primary-to-secondary server backup, which is true hot standby instead of a 1:many architecture. Also, to make the most efficient use of available IP address space, the primary and secondary DHCP servers use the same IP address range, with conflicts prevented by having the secondary server process addresses in an order opposite to that of the primary.

The ability of the DHCP system to integrate directly with the service provider’s billing system was also vital, in order to ensure that the operator can accurately charge subscribers for the specific level of service requested.

Results

More than 10,000 customers signed up for the IPTV service in its first year of availability. Customers could receive high-speed Internet service on their TVs and computers, as well as a full lineup of digital quality TV channels, including local radio and television programming. The introduction was coupled with a video-on-demand (VOD) service, also through the set top boxes. Unlike pay-per-view service, VOD meant that customers didn’t have to watch movies at pre-scheduled times.

Over the ensuing two years, the IPTV and VOD services, along with wireless services, “contributed significantly” to the company’s revenue increases.

What’s more, the company received industry engineering awards for demonstrating the “highest professional performance” in rolling out the new service.

Most recently, the service provider was able to add HDTV capabilities through their IPTV infrastructure, and at over 60,000 IPTV subscribers, is now attracting even higher rates of subscribership.